

Report

on

Two -Day Workshop: IoT & Robotics Applications

Date Organized	Title of Program	Name of Resource Person	Participants
06/05/2024 to 07/05/2024	"IoT & Robotics Applications"	Mr. Rahul Venepally, Founder & CEO, Vermac Labs	B. Tech. ECE III (49 Students) and ECE faculty members

NALLA NARASIMHA REDDY
Education Society's Group of Institutions - Integrated Campus
(Approved by AICTE & PCI, New Delhi & Affiliated to JNTU, Hyderabad)
Accredited by MAAC with A+ Grade
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Hyderabad, T.S. - 500 088.

SCHOOL OF ENGINEERING
Department of Electronics and Communication Engineering

**A 2-DAY WORKSHOP ON
IOT & ROBOTICS
APPLICATIONS**

Resource Person

Mr. Rahul Venepally
Founder & CEO
Vermac Labs

IoT **IoT**

6th - 7th May 2024 | **Time: 10:00 AM** | **Venue: ECE Seminar Hall**

Purpose of the Program

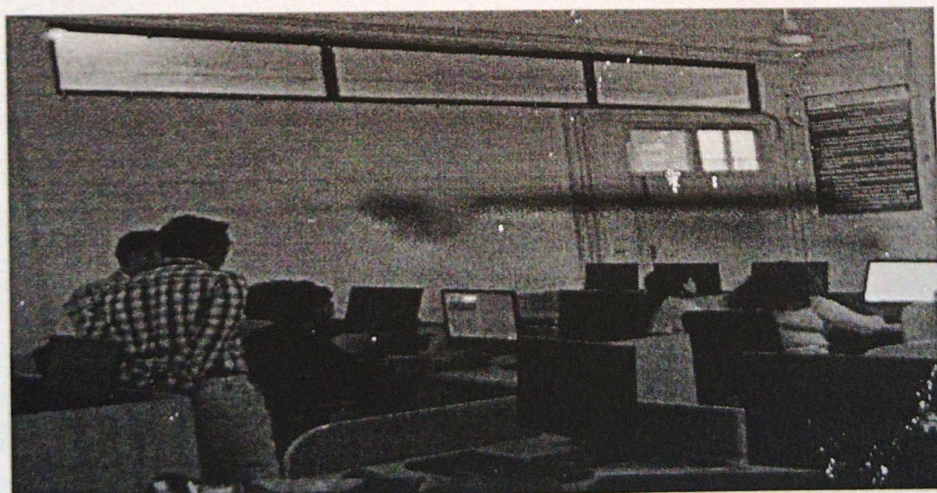
The workshop was organized to introduce students to the rapidly growing fields of the Internet of Things (IoT) and Robotics, which play a significant role in Industry 4.0 and smart automation. The primary objective was to help students understand the architecture of IoT systems, the integration of sensors and actuators, wireless communication technologies, cloud connectivity, and robotic control systems. The program also aimed to provide practical exposure to embedded platforms, encourage innovation in automation technologies, and prepare students for careers in IoT, robotics, and intelligent systems.

Day-wise Report

Day 1: The first day focused on introducing students to the fundamentals of IoT, including IoT architecture, embedded controllers, sensors, actuators, wireless communication protocols, and cloud computing. The resource person demonstrated how IoT devices collect and transmit data in real time using development boards such as Arduino and ESP32. Students actively participated in hands-on demonstrations involving sensor interfacing and cloud-based monitoring applications.



Day 2: The second day concentrated on robotics and automation. Students learned about robotic components, motor control, embedded programming, autonomous navigation, industrial robotics, and IoT-enabled robotic applications. Practical demonstrations showcased obstacle detection, robotic movement, and remote monitoring systems. The workshop concluded with discussions on Industry 4.0 technologies, entrepreneurship opportunities, and career prospects in automation and robotics.



Program Highlights

The workshop included expert sessions by an experienced entrepreneur from Vermac Labs, practical demonstrations using IoT development boards and robotic kits, and interactive discussions on real-world industrial applications. Students gained hands-on exposure to embedded hardware, sensor integration, wireless communication, and robotic automation. Industry case studies, project demonstrations, and career guidance made the sessions highly engaging and application-oriented.

Outcome of the Program

At the end of the workshop, students developed a strong understanding of IoT architecture, embedded systems, and robotic automation. They learned to interface sensors with microcontrollers, implement IoT communication protocols, and understand the operation of robotic systems. The workshop enhanced their practical skills, problem-solving abilities, and awareness of Industry 4.0 technologies while motivating them to undertake innovative projects in IoT, robotics, and smart automation.

PO-PSO-SDG Mapping

Program Outcomes (POs)	Program Specific Outcomes (PSOs)	Sustainable Development Goals (SDGs)
PO1 – Engineering Knowledge	PSO1 – Apply Embedded System Concepts	SDG 4 – Quality Education
PO2 – Problem Analysis	PSO2 – Design IoT and Automation Solutions	SDG 8 – Decent Work & Economic Growth
PO3 – Design & Development of Solutions		SDG 9 – Industry, Innovation & Infrastructure
PO5 – Modern Tool Usage		
PO9 – Individual & Team Work		
PO12 – Life-long Learning		

Outcome Analysis

Assessment Parameter	Analysis
Student Participation	Excellent participation throughout both days
Practical Learning	Students effectively understood IoT hardware and robotic systems
Technical Skill Enhancement	Significant improvement in embedded programming and automation concepts
Student Interaction	Highly interactive practical sessions
Overall Feedback	Very Good to Excellent

Overall Impact

The workshop successfully enhanced students' knowledge of IoT and Robotics by providing industry-oriented practical exposure. Participants developed confidence in designing smart connected systems and gained insights into emerging technologies that support innovation and automation.


HoD
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